WHAT IS CLAIMED IS:

1. A transimpedance amplifier circuit with limited output voltage and wide input-current dynamic-range comprising:

a. an first transistor, with an input current signal connected to a control terminal and a second and third terminal;

b. a second transistor with a control terminal connected to the second terminal of the first transistor providing an output voltage at a second terminal, and a third terminal of said second transistor being connected to a positive supply voltage,

c. a resistor connected between the second terminal of the second transistor and the control terminal of the first transistor providing a voltage controlled current feedback from the amplifier output to its input, and

d. a shunt circuit in parallel to the feedback resistor comprising a third and a fourth transistor each having an control terminal, with a second terminal of both third and fourth transistor connected to the second terminal of the second transistor and the third terminal of both third and forth transistor connected to the control terminal of the first transistor.

2. The transimpedance amplifier circuit according to claim 1, further characterized in that and the second terminal of said second transistor is driven by a first current source connected to ground.

3. The transimpedance amplifier circuit according to claim 1, further characterized in that and the control terminals of the third and fourth transistors are adjusted by first and second control voltage sources.

4. The transimpedance amplifier circuit according to claim 3, further characterized in that the first and second control voltage sources are dynamically adjusted.

5. The transimpedance amplifier circuit according to claim 3, further characterized in that the first control voltage source is connected between the control terminal of said third transistor and ground (GND) and the second control voltage source connected between the control terminal of said forth transistor and the second terminal of the second transistor.

6. The transimpedance amplifier circuit according to claim 1, further characterized in that and the control terminals of the said third and fourth transistors being adjusted by second and third resistors, respectively, with the required voltage drop across these resistors being defined by a first and second adjustable current source.

7. The transimpedance amplifier circuit according to claim 6 further comprising first and second filter capacitors connected in parallel to said second and third resistors, respectively.

8. The transimpedance amplifier circuit according to claim 1 characterized in that a first and second emitter series feedback resistor is used in the shunt structure with said third and fourth transistor respectively and connected in series with said third and fourth transistor.

9. The transimpedance amplifier circuit according to claim 1 further comprising a fifth transistor connected between the load resistor RL connected to the positive supply and the first terminal of the first transistor, with the control terminal of the fifth transistor being defined by a first reference voltage.

10. The transimpedance amplifier circuit according to claim 1 characterized in that a third voltage source is connected between the second terminal of the second transistor and the first current source.

11. The transimpedance amplifier circuit according to claim 1 characterized in that a dummy stage is realized as a reference for the output signal.

12. The transimpedance amplifier circuit according to claim 11 wherein the dummy stage further comprises a collector of a common emitter transistor being connected to the emitter of a common base transistor and the base node of said common base transistor being driven by a reference voltage, while the collector of the common base transistor is connected to VCC via a load resistor, and an emitter-follower transistor with the base connected to the collector of the common base transistor and a collector of the said emitter-follower transistor being connected to the positive supply VCC, and a voltage source being used in series to the emitter of follower transistor and the series connection of the emitter follower transistor and the voltage source being fed by a constant current source connected to ground, and with a feedback resistor providing voltage controlled current feedback from the current source to the common emitter transistor.

13. The transimpedance amplifier circuit according to claim 1 characterized in that all transistor devices are npn transistor devices.

14. The transimpedance amplifier circuit according to claim 1 characterized in that all transistor devices are pnp transistor devices and that a negative supply voltage is used to operate the circuit.

15. The transimpedance amplifier circuit according to claim 1 characterized in that all transistor devices are n-channel MOSFET devices.

16. The transimpedance amplifier circuit according to claim 1 characterized in that all transistor devices are n-channel MESFET devices.

17. The transimpedance amplifier circuit according to claim 1 characterized in that all transistor devices are p-channel MOSFET devices and that a negative supply voltage is used to operate the circuit.

18. The transimpedance amplifier circuit according to claim 1 characterized in that all transistor devices are p-channel MESFET devices and that a negative supply voltage is used to operate the circuit.

19. A transimpedance amplifier circuit with limited output voltage and wide input-current dynamic-range comprising:

a. a common emitter input transistor Q1, with the input current signal IIN connected to the base node;

b. a load resistor RL connecting the collector of said common emitter input transistor to the positive supply voltage VCC;

c. a second transistor Q2 operating as an emitter follower providing the output voltage VOUT at its emitter and with its base connected to the collector of the first transistor Q1 an the collector of said second transistor being connected to the positive supply voltage while the emitter is driven by a current source I1 connected to ground;

d. a resistor RF connected between the emitter of said second transistor and the base of said first transistor providing a voltage controlled current feedback from the amplifier output to its input, and

e. a shunt circuit in parallel to the feedback resistor RF comprising a third and a fourth transistor Q3 and Q4, respectively, with the emitter of Q3 and the collector of Q4 both connected to the emitter of the second transistor Q2 and the collector of Q3 and the emitter of Q4 both connected to the base node of the first transistor Q1 and the base node voltages of the said transistors Q3 and Q4 being adjusted by control voltage sources VC1 and VC2, respectively, with VC1 connected between the base of said third transistor Q3 and ground (GND) and with VC2

connected between the base of said forth transistor Q4 and the emitter of the second transistor Q2.

20. The transimpedance amplifier circuit according to claim 19, further characterized in that VC1 and VC2 are replaced by resistors RC1 and RC2, respectively, with the required voltage drop across these resistors being defined by the adjustable current sources IC1 and IC2.

21. The transimpedance amplifier circuit according to claim 20 further comprising additional filter capacitors CC1 and CC2 included in parallel to RC1 and RC2, respectively.

22. The transimpedance amplifier circuit according to claim 19 characterized in that emitter series feedback resistors RE1 and RE2 are used in the shunt structure with RE1 being connected between the emitter of Q3 and the emitter of Q2 and RE2 being connected between the emitter of Q4 and the base of Q1.

23. The transimpedance amplifier circuit according to claim 19 characterized in that an additional common base transistor Q5 is connected to the collector of Q1 with the collector of the said additional transistor Q5 being connected via the load resistor RL to the positive supply VCC and the base potential of the transistor Q5 being defined by a reference voltage VRCB.

24. The transimpedance amplifier circuit according to claim 19 characterized in that an additional voltage source VLS is included in series to the emitter follower Q2 with said voltage source VLS is connected between the emitter of Q2 and the current source I1.

25. The transimpedance amplifier circuit according to claim 19 characterized in that a dummy stage is realized as a reference for the output signal VOUT with the collector

of a common emitter transistor Q1' being connected to the emitter of a common base transistor Q5' and the base node of said transistor Q5' being driven by a reference voltage VRCB, while the collector of the common base transistor Q5' is connected to VCC via a load resistor RL' and the base of an emitter-follower Q2' is connected to the collector of the common base transistor Q5' with the collector of the said emitter-follower Q2' being connected to the positive supply VCC and a voltage source VLS' being used in series to the emitter of Q2' and the series connection of Q2' and VLS' being fed by a constant current source I1' connected to ground (GND) and with a feedback resistor RF' providing voltage controlled current feedback from I1' to the base node of Q1' and the output voltage of this transimpedance amplifier being available between the emitter nodes of Q2 and Q2'.